# (19) World Intellectual Property Organization

International Bureau





### (43) International Publication Date 23 June 2005 (23.06.2005)

### PCT

## (10) International Publication Number WO 2005/057672 A2

(51) International Patent Classification7:

H01L 33/00

(21) International Application Number:

PCT/US2004/041392

(22) International Filing Date: 9 December 2004 (09.12.2004)

(25) Filing Language:

**English** 

(26) Publication Language:

**English** 

(30) Priority Data:

60/527,969

9 December 2003 (09.12.2003)

(71) Applicant (for all designated States except US): GEL-CORE, LLC [US/US]; 6180 Halle Drive, Valley View, OH 44125-4635 (US).

(72) Inventors; and

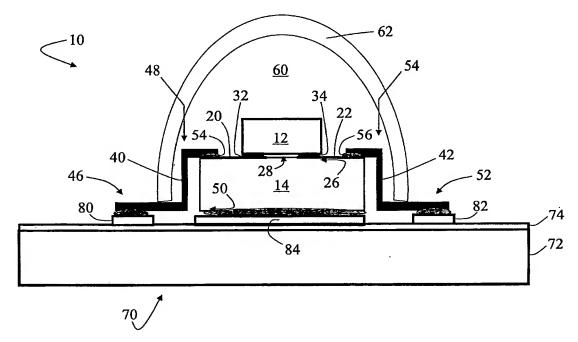
(75) Inventors/Applicants (for US only): WEAVER, Stanton, Earl, Jr. [US/US]; 19 Hemlock Terrace, Northville, NY 12134 (US). CHEN, Chen-Lun Hsing [CN/US]; 26101 Country Club Boulevard, North Olmsted, OH 44077 (US). KOLODIN, Boris [US/US]; 2634 Brentwood Road, Beachwood, OH 44122 (US). STECHER, Thomas, Elliot [US/US]; 2889 Ridge Road, Scotia, NY 12302

(US). REGINELLI, James [US/US]; 6076 Padua Drive, North Royalton, OH 44133 (US). HAITKO, Deborah, Ann [US/US]; 1041 Lexington Avenue, Schenectady, NY 12309 (US). GAO, Xiang [CN/US]; 78 College Drive, Edison, NJ 08817 (US). ELIASHEVICH, Ivan [RU/US]; 514 Prospect Street, Maplewood, NJ 07040 (US).

- (74) Agents: MCCOLLISTER, Scott, A. et al.; Fay, Sharpe, Fagan, Minnich & McKee, LLP, 1100 Superior Avenue, 7th Floor, Cleveland, OH 44114 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

#### (54) Title: SURFACE MOUNT LIGHT EMITTING CHIP PACKAGE



(57) Abstract: A surface mount light emitting package includes a chip carrier having top and bottom principal surfaces. At least one light emitting chip is attached to the top principal surface of the chip carrier. A lead frame attached to the top principal surface of the chip carrier. When surface mounted to an associated support, the bottom principal surface of the chip carrier is in thermal contact with the associated support without the lead frame intervening therebetween.

## WO 2005/057672 A2



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.